

# [HIGH TOLERANCE TCR BALANCED HIGH CURRENT RESISTOR FOR RF CMOS AND RF SiGe BiCMOS APPLICATIONS AND CANDIDENCED BASED HIERARCHICAL PARAMETERIZED CELL DESIGN KIT WITH TUNABLE TCR AND ESD RESISTOR BALLASTING FEATURE]

## Abstract

A resistor device structure and method of manufacture therefore, wherein the resistor device structure invention includes a plurality of alternating conductive film and insulative film layers, at least two of the conductive film layers being electrically connected in parallel to provide for high current flow through the resistor device at high frequencies with increased temperature and mechanical stability. The alternating conductive film and insulative film layers may be of a planar or non-planar geometric spatial orientation. The alternating conductive film and insulative film layers may include lateral and vertical portions designed to enable a uniform current density flow within the structure itself through a self-

ballasting effect within the physical resistor. A computer aided design tool with graphical and schematic features is provided to enable generation of hierarchical parameterized cells for a resistor element with the ability to provide customization, personalization and tunability of TCR, TCR matching, and high current and ESD robustness.